REMARKS

The present Response is submitted in reply to the Office Action of February 25, 2004.

Claims 4-7 are presently pending in the Application and the Examiner has rejected claims 4, 6 and 7 under 35 U.S.C. § 103(a) as unpatentable over Stern et al. '557 and claim 5 under 35 U.S.C. § 103(a) as unpatentable Stern et al. '557 in further view of Kato et al. '044. The Applicant acknowledges and respectfully traverses the raised rejections in view of the following remarks.

The Applicant has carefully considered all of the Examiner's rermarks in the present Action and respectfully disagrees with essential points of the Examiner's intepretation of the teachings of Stern et al. '557 and Kato et al. '044 and their applicability to the present invention. The concurs with the Examiner, however, that the claims as previously discussed lack certain recitations that would explicitly distinguished the present invention and claims over and from the cited pnor art.

The Applicant therefore offers claim amendments herein above to clarify and more explicitly point out essential distinctions of the present invention over Stern et al. '557 and Kato et al. '044. The following comments discuss these distinctions and, although certain of the following comments and discussions are reiterative with respect to the discussions of previous Responses, they are repeated herein to avoid the need to refer to the previous Responses.

First briefly considering the present invention as recited in the claims as amended herein, the present invention is directed to a cable broadcasting system that includes a central equipment having broadcasting equipment for transmitting broadcast signals and command signals controlling distribution of the broadcast signals to receiving terminals in receiving districts. Each receiving district includes tap devices connected from the transmission line for distributing the broadcast signals to the terminals and a single district power supply providing a power signal through the transmission line to each of the tap devices of the receiving district. Each tap device includes the circuits necessary to switchably and controllably control the

distribution of the broadcast signals to the terminals and a single tap device power supply connected from a power signal on the transmission.

Each district has a single district power supply that provides power to all the tap devices of the district, including the power to support tap device switching operations. It is desirable that the district power supplies be as small and inexpensive as feasible, so that the capacities of the district power supplies are a significant issue as it is necessary that the power required for all operations in a district, including tap device switching, remain within the capacities of the district supplies. The present invention solves this problem by limiting the number of concurrent or closely consecutive switching operations occurring in a given district so as to avoid exceeding the capacities of the district power supply.

It is therefore an essential aspect of the present invention that, as recited in claim 4, the center equipment controller will generate and transmit command signals to the control relays of the tap devices of each district such that two consecutive command signals will not be transmitted to the same district, thereby controlling the number and occurrence of command signals directed to the tap devices in each district so that the number of concurrent or consecutive switching operations in a district do not exceed a limit.

As recited in claim 4, the transmisssion of consecutive command signals to a single district is avoided by transmitting each command signal to a different district, thereby imposing a delay of at least the command transmission interval between successive transmissions to a given district, so that the switching operations in that district due to a first command are completed before the second command is transmitted to that district.

This aspect of the present invention is further delineated in claims 5, 6 and 7 which, recite that in the case of command signals transmitted by the center equipment controller the interval between transmission of command signal to a given district will be at least that required for a tap device in the district to compete execution of a preceding command signal.

Lastly, it must be noted that while the command signals are generated and transmitted to the tap devices by the center equipment controller, the center equipment controller does not

generate or provide the power signal to the tap devices or to the district power supplies. Power to the tap devices in each district is instead generated by and provided from the district power supply, so that each district is independent from the center equipment controller as requires power supply needs. According to the present invention, the separation of the command and control functions of the system from the power supply sources and power distribution is accomplished by generating and transmitting command signals that are separate and independent from the power signals to the districts.

Referring now to Stern et al. '557, and first considering the distribution of power and command signals to the addressable taps, Stern et al. '557 describes in Fig. 1A and the corresponding text that the system may contain a plurality of power units 2 wherein each power unit 2 generates and transmits a single combined power/command signal to a group of associated addressable taps 3. Considering this feature of the Stern et al. '557 system in greater detail, each power unit 2 is the source of the power portion of the power/command signal for the associated group of addressable taps 3 but the original source of the commands for the combined power/command signal generated by the each power unit 2 is a central head end control station. In operation, therefore, each power unit 2 receives commands for its associated addressable taps 3 from the head end control station, combines the commands with the power generated by the power unit 2 by superimposing the command signals on the power signal by coding the waveform of the power signal to generate the combined power/command signal, and transmits the combined power/command signal to the group of associated addressable taps 3.

It is therefore clear that the system of the present invention is fundamentally distinguished over and from Stern et al. '557 because the system of the present invention transmits command signals that are separate from and distinguished from the power signals to the districts, so that the command and power functions are separate and independent in the system of the present invention.

In further fundamental distinction between the present invention and Stern et al. '557, it must be noted that Stern et al. '557 does not address or consider the effects of power consumption due to concurrent or closely consecutive addressable tap switching operations due to concurrent or closely consecutive command signals transmitted to the tap devices. Likewise, Stern et al. '557 does not consider or address a need to limit the number of concurrent or closely consecutive command signals transmitted to an addressable tap or group of addressable taps, or any means or method for limiting the number of concurrent or closely consecutive command signals transmitted to an addressable tap or group of addressable taps.

Stern et al. '557's lack of consideration of power consumption caused by switching operations permeates and effects the structure and operation of the entire Stern et al. '557 system and, in particular, the method for transmitting command signals to the various addressable taps in the Stern et al. '557 system.

In this regard, the Applicant notes that the Examiner primarily refers to column 1, lines 1 to 21, for teachings by Stern et al. '557 regarding the sequencing or limiting of tap switching commands and interprets Stern et al. '557 as teaching the serial or successive transmission of tap switching commands to different districts. The Applicant respectfully disagrees with the Examiner's interpretation of Stern et al. '557, however, because of the basic architectural differences between the Stern et al. '557 system and the system of the present invention.

For example, at lines 6 through 18 of column 6, Stern et al. '557 states that the central head end station will transmit the original commands for the addressable taps 3 to their respective power units 2 serially and at a high rate "so as to be almost simultaneously addressed", and that the power units 2 will then address their respective addressable taps with the combined power/command signals "simultaneously, in parallel". It may therefore be seen that the serial or sequential transmission of commands is only from the central head end station to the power units 2 and does not initiate any actual switching operations but serves only to distribute the commands to the power units 2. The transmission of the power/command signals to the associated addressable taps 3, that is, the command signals that initiate the actual

switching operations, is executed in parallel from each power unit 2 to its associated addressable taps 3. As a conseqence, and except for the actual number of addressable taps 3 that are connected to a given power unit 2, there is not and cannot be any actual limitation or control of the number of tap switching operations that a power unit 2 can be required to support concurrently. All of the addressable taps 3 controlled from a given power unit 2 will be addressed at once and in parallel and the only limitation is whether or not a given addressable tap 3 is command to switch.

The system of the present invention is thereby fundamentally distinguished from the teachings of Stern et al. `557 in that the system of the present invention controls the power load resulting in each district from the switching operations of the tap devices by controlling and limiting the number of concurrent or successive switching commands transmitted to each district, either by transmitting to succesive commandsi to different districts or by otherwise imposing a delay between the commands transmitted to a given district. Stern et al. `557, in contrast, does not consider or address questions of power overloads due to tap switching and does not make any attempt to limit or control the number of switching commands transmitted to any group of addressable taps 3, instead transmitting the switching commands to all of the addressable taps 3 in parallel and at the same time.

Next considering the teachings of Kato et al. `044, which is cited in the rejection of claim 5,, the Examiner cites Kato et al. `044 as teaching the ability of a command sequence to wait an elapsed time to ensure that the preceding command instruction has executed before executing the next command, and states that it would be obvious to incorporate this teaching into Stern et al. `557 to control the timing of commands to a district and thereby to limit the switching power consumption.

Again, the Applicant respectfully disagrees with the Examiner's interpretation of the teachings of Kato et al. `044 and the applicibility of Kato et al. `044 to the present invention, with or without the teachings of Stern et al. `557.

Kato et al. `044 describes a picture transmission system comprised of a plurality of picture outputing means, that is, video cameras, and one or more picture receiving means, that is, monitors, and one or more picture connection requesting means, that is, control units, for controlling the transmission of images from the picture outputing means to the picture receiving means.

As described by Kato et al. '004 at, for example, column 2, lines 44-61; column 3, lines 12-14 and 30-36; column 6, lines 1-10; column 16, line 31 - column 17, line 46; column 26, line 20 - column 29, line 67 and the corresponding figures, such as Figs. 1 and 24. According to Kato et al. `004, the described system is capable of transmitting command programs consisting of sequences of commands for controlling a picture outputing means from a picture connection requesting means to one or more picture outputing means, and of time controlled execution of those programs in the picture outputing means to provide a desired program of images and sequences of images to the picture receiving means.

It must first be noted that it is difficult to compare Kato et al. `004 and the system of the present invention because the architecures and functions of the two types of system are very different and serve different purposes. For example, Kato et al. `004 has no concept or teaching of districts or district taps or district power supplies or of the avoidance of sequential commands to a single district to prevent overloading of the district power supply, so that these programmed sequences in Kato et al. `004 have no real correspondence to the present invention. For purposes of the following discussions, however, the Applicant will, solely for purposes of the present discussions and without any admission or further implication, treat a Kato et al. `004 picture connection requesting means 108 as topologically similar to the center equipment of the present invention and a Kato et al. `004 picture sending unit 105 as topologically similar to a tap device of the present invention. It must be noted that Kato et al. `004 has no equivalent to districts or district power supplies and that Kato et al. `004 does not even address power supply matters. In the reverse, a system of the present invention has no element corresponding even generally to a Kato et al. `004 picture receiving unit, unless it could

be a terminal, or a tap device, either of which would conflict with the above assumed discussion conventions in several respects.

With these assumptions, however, the transmission of a command program for controlling a picture outputing means from a picture connection requesting means to the picture outputing means is a conventional program downoad operation conventional in the arts. This aspect of the operation of the Kato et al. '004 system is not, however, relevant to the present invention as the system of the present invention does not concern the downloading of programs. For example, the system of the present invention the center equipment transmits individual commands directly to the tap devices in a district, where they are effectively executed immediately, so that there is no program download and storage operation. It should also be noted that the claims themselves do not recite a program download, store and execute operation, so that the teachings of Kato et al. '004 are irrelevant to the present invention in this regard.

Further in this regard, however, it must be noted that the Examiner has stated in page 6 of the Action that it is well known in the art to repeat the transmission of a signal for error correction, thereby ensuring that the signal was received at the destination. The Applicant concurs with the Examiner but must point out that the repeated transmission of a missed signal is not an aspect of the present invention and is not, in fact, recited in any form in the claims.

The Applicant must also point out, however, that claim 4, for example, recites that:

"the controller of the central equipment

transmits a command signal to a receiving district having at least one tap device to which a command signal is to be transmitted,

transmits a command signal to a receiving district which has not received a command signal in a proceeding transmission of a command signal and which has at least one tap device to which a command signal is to be transmitted, and

repeats the transmission of command signals as necessary to provide at least one command signal to each tap device which is to receive a command signal." [Emphasis added]

This recitation of repeated operations does not refer to the repeated transmission of a missed command, however, but instead recites that the system repeats the cycle of transmitting a command to each district in a sequential "round-robin", with each district receiving one command at a time, until all of the commands have been distributed to all of the districts that are to receive commands. It will be apparent, therefore, that the appearance of the term "repeat" in the present claims is not related to any operation or function described by Kato et al. `004 but instead refers to a different type of repeated operation, so that Kato et al. `004 is not relevant to the present invention or claims in this matter.

Next considering the Examiner's interpretations of the teachings of Kato et al. `004 in colums 29 and 30 thereof, these portions of the Kato et al. `004 reference describe the time controlled execution of programs downloaded into and stored in the picture outputing means to provide a desired program of images and sequences of images to the picture receiving means.

First, it must be noted that Kato et al. `004 does not describe the time downloading of commands to a picture outputing means in those portions of the specification, but instead describes the timed execution of commands stored within the unit executing the commands.

To diverge monentarily, even if it is assumed that the original downloading of commands is clocked, that is, commands are transmitted and received at timed intervals, it must be recognized that this form of timing is unrelated to the timing of the execution of switching operations in the tap devices of the present invention. That is, and more specifically, the time intervals of download timing are determined by such factors as network speed, how rapidly the transmitting and receiving devices can shift or accept data, and so on. Download timing as

described in Kato et al. `004 is, however, unrelated to any form of timing dependent upon power consumption limitations or the frequency of power consuming switching operations.

Returning to the actual teachings of Kato et al. `004, the timed operations described by Kato et al. `004 at columns 28 and 29 and in the related Fig. 24, are concerned with the reading of the successive commands of a control program from memory and the execution of those commands.

It must first be recognized that there is no analogous operation in a system of the present invention. That is, the commands are not stored in the tap devices before execution but are instead executed when transmitted from the central equipment. There is, in fact, no memory or control processor or other facilities for storing and executing programs in the tap devices. The closest analogy to the operations described by Kato et al. `004 is, in fact, in the Stern et al. `557 system wherein the commands for the addressable taps 3 are to some extend stored in the associated power supply 2 before being mixed with the power signal for transmission to the addressable taps 3.

It is therefore apparent that the operations of the downloading, storing and execution of command programs as described in Kato et al. `004 is not only not implemented in the systems of the present invention, but the system of the present invention does not even have the elements necessary to download and store commands in the tap devices.

Next, it must be noted that Kato et al. `004 describes that the operations of the various picture outputing means can be synchronized with each other and with the picture receiving means to synchronize and control the display of the resulting images from the picture outputing means. Again, and again in basic contrast from a system of the present invention, all timing performed in the Kato et al. `004 system is for the purpose of synchronizing operations by the various elements of the system, and no for any purpose having to do with the limiting or control of power consumption levels resulting from those operations.

In this regard, Kato et al. `004 specifically states that the commands of the sequences may be executed synchronously or in concurrence, like Stern et al. '557, so that there is in fact

no control over the number of concurrent or simultaneous switching operations and the number of switching operations that will occur at any given instant will depend solely upon factors other than peaks in power consumption. Kato et al. '004, like Stern et al. '557, thereby teaches directly away from the teachings of the present invention.

For the above discussed reasons, therefore, it is the belief and position of the Applicant that the present invention as recited in claims 4-7 as amended herein are fully and patentably distinguished over and from the teachings of Stern et al. '557, of Kato et al. '004 and of Stern et al. '557 in view of Kato et al. '004 under the requirements and provisions of 35 U.S.C. 103.

In this regard, it should be noted that claims 5-7 and new claim 8 are each dependent from amended claim 4 and thereby incorporate all recitations and limitations of claim 4 so that claims 5-8 are thereby patentably distinguished over the cited prior art for the same reasons that claim 4 is patentably distinguished over the cited prior art, as well as by the recitations appearing in the claims themselves.

In further support of the above stated position, the Applicant has herein above submitted claim amendments which clarify and more explicitly point out the above discussed distinctions of the present invention over Stern et al. '557 and Kato et al. '044 and Stern et al. '557 in view of Kato et al. '004.

These claim amendments are particularly directed to claim 4, so that the amendments thereby appear by incorporation in dependent claims 5-8, and include limitations pertaining to the separation of the power and command signals and to the functions and results accomplished by the limitations placed on the number of command signals transmitted to a given district during a given time interval, thereby further clarifying and emphasizing the distinctions of the present invention over the cited prior art.

It will also be seen that the amendments to claim 4 pertaining to the timing of command signals to the districts and the functions and results of these limitations have resulted in the addition of a new claim 8, which now expresses the specific limitation previously recited in claim 4 while claim 4 now recites a more exact statement of the pertinent limitation.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 4-7 as amended herein over Stern et al. '557, Kato et al. '004 and Stern et al. '557 in view of Kato et al. '004 under the requirements and provisions of 35 U.S.C. 103, and the allowance of claims 4-7 as amended herein.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejections or applicability of the Stern et al. '557 and Kato et al. '044 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.